

Meeting abstract

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## Facilitating equity and efficiency in Malaysian primary health care through the application of the ACG® case mix system

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### Introduction

Malaysian health care is a parallel system with both public and private sectors. The MOH (Ministry of Health) is the main provider of health services in the country, delivering comprehensive medical, health, dental and pharmaceutical services at primary, secondary and tertiary levels of care.

The public health services are heavily subsidized by the government. The practice of financial distribution within the Ministry of Health of Malaysia has traditionally been dependent on historical information, i.e., looking at past performance. Any additional increment has been based on arbitrary predictions of the consumer index or inflation. A more appropriate distribution would be based not only on the volume of patients, but also on the morbidity profiles of these populations.

Because of the development of the TPC (Tele-Primary Care) electronic system, considerable data is now collected, and there exists a vast potential for data-mining. One potential area of study is to account for the differences in the health status of populations and their anticipated need for healthcare services. An earlier project demonstrated that the TPC dataset provides viable data that can be used for understanding differences in case mix

and resource need by various population sub-groups. This was the first step in a multi-stage process to demonstrate the benefits of integrating case mix into the Malaysian healthcare system.

As a result of the first project, an increased understanding of the TPC database was gained, which is providing usable data. However, to make full and effective use of TPC, a resource-use measure based on micro-costing information needed to be developed and validated. This project evaluated the plausibility of recently developed cost measures. This new resource-use measure would enable a clearer understanding of the resource consumption based on the morbidity profile of populations across regions, as well as individual clinics.

### Methods

The primary sources of data for this project came from public, primary care clinics using the TPC system; an alternative electronic system; a small group practice of private primary care clinics using a separate electronic system; and the network of a private medical insurance group with nationwide enrollees. The objective of the project was, first, to take the analyses a step further by incorporating new data input streams from private providers, and then

to validate that the newly developed micro-costing information was meaningful.

In addition, the project sought to assess the ability to link patient information across different providers, re-analyze the results from Phase 1 using the new resource measure, and then develop a program targeted at improving data quality. Lastly, the aim was to compare differences in service delivery patterns between TPC facilities and providers to assess the efficiency of resource use.

## Results

a) The success of the coding-quality training programs to ensure continually improved data quality in TPC over time was demonstrated. The data quality is sufficiently high to create more sophisticated models. Models to identify "high risk" patients or "high cost" patients are already possible.

b) The ACG system has been proven to work with Malaysian TPC data, and the micro-costing data works for the TPC population and allows us to better understand differences in resource allocation/need. The 2008 Total Visits model is extremely predictive. However, the cost data for health clinics needs to be improved before the Total Cost can be used to predict costs with the same predictive ability as the Total Visit models.

c) The analyses of the UPIN's (Unique Patient Identification Number) ability to link data to better capture the services being provided from multiple providers show that existing challenges are surmountable. A better understanding of the differences in service delivery in public vs. private sectors is imperative before a national capitation scheme is possible.

d) The profiling of providers on a regional basis as the initial step to determining the viability of a morbidity-based capitation formula was successful.

## Conclusions

The initial project successfully demonstrated the ability of Malaysia to apply readily available diagnostic and other clinical information to develop state-of-the-art case-mix measures relevant to medical and fiscal management activities using the TPC database. It also offered an example of how risk adjustment tools can be used to monitor the TPC data collection process.

The ACG system has been proven to work with Malaysian data, and it works very well for Total Visits where they can now be used to predict Total Visits with a very high certainty. Where the data quality has improved, the predictive modeling has improved in tandem. The data quality is sufficiently high to create more sophisticated models.

Models to identify "high risk" patients or "high cost" patients are already possible.

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